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The Impact of Interpersonal Violence on Depression and Social Support

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The Impact of Interpersonal Violence on Depression and Social Support

by

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the requirements for the degree
Doctor of Philosophy in Clinical Psychology

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Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Doctor of Philosophy.

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I would like to dedicate this thesis to my grandmother, Beverly Kay Bessler, who has encouraged and supported me from elementary school to graduate school. Without her patience and love, I know I would not have been able to reach this point in my career or life. Thank you also to the rest of my family and friends who have listened to me talk through my ideas and distracted me when I needed a break. I would also like to thank Dr. Morton for her mentorship and supervision as we worked our way through multiple phases of this project to form a theoretically driven study. Thank you to my committee members, Drs. Lee and Herbozo, for their feedback and suggestions, which were essential for making this manuscript possible. Finally, I would like to give thanks to God for both the opportunity and the endurance to finish this thesis.

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ABBREVIATIONS

PTSD	Post Traumatic Stress Disorder
TR	Targeted Rejection

ABSTRACT OF THE THESIS

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by

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Dr. Kelly R. Morton, Chairperson

This study explores the impact of sexual assault, interpersonal trauma, and non-interpersonal trauma on depression and social support. Female adult, Seventh-day Adventists in the Biopsychosocial Religion and Health Study were surveyed and regressions controlling for age, difficulty meeting expenses, education, and race tested whether trauma types predicted depression and social support. Results indicated sexual assault and interpersonal trauma predicted depression while non-interpersonal trauma did not. When sexual assault was combined with other interpersonal traumas, interpersonal trauma was associated with higher depressive symptomatology than non-interpersonal trauma. Trauma significantly predicted negative but not positive social support. Theoretical implications are discussed.

Keywords: Interpersonal Trauma, Sexual Assault, Depression, Trauma, Targeted Rejection

CHAPTER ONE

REVIEW OF THE LITERATURE

Research consistently demonstrates that traumatic events negatively impact mental and physical well-being. Researchers have found that 69% of U.S. adult women have experienced at least one traumatic event, with 10% of women reporting physical assault, 36% reporting criminal victimization, and 33% endorsing being in a natural disaster (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). In particular, women are at higher risk for interpersonal traumas with as many as 59% of women being victims of interpersonal trauma and rates of sexual assault ranging from 27% to 71% (Bryant-Davis, Ullman, Tsong, Gobin, 2011; Kilpatrick et al., 2013; Resnick et al., 1993). Given the high rates of trauma among women, the effects of trauma, particularly interpersonal trauma, represent a serious health concern. According to the Diagnostic and Statistical Manual of Mental Illness (DSM-5), traumatic events are those that involve either threatened or experienced fear of death or physical injury (American Psychiatric Association, 2013). One of the challenges to studying trauma is that there are myriad events that fit the DSM's definition of trauma, such as threatened or actual assault, threatened or actual sexual violence, disasters, car accidents, combat exposure, and both physical and sexual child abuse. These individual traumas are often grouped into larger categories such as interpersonal trauma and non-interpersonal trauma (Ford, Stockton, Kaltman, & Green, 2006; Kilpatrick et al. 2003; Lilly & Valdez, 2012). Interpersonal trauma is defined as a traumatic event perpetrated by another human. Non-interpersonal trauma is a traumatic event not perpetrated by another person, such as accidents and natural or man-made disasters. Although interpersonal trauma has been found to have

more severe outcomes than exposure to non-interpersonal trauma, sexual assault has also emerged as a potential type of interpersonal trauma that may have worse negative outcomes than other traumas (Amstadter & Vernon, 2008; Faravelli, Giugni, Salvatori, & Ricca, 2004; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). The purpose of this study is to explore different types of adult trauma, with specific attention to interpersonal trauma, non-interpersonal trauma, and sexual assault as a specific type of interpersonal trauma.

Cognitively, differences between interpersonal trauma exposure, non-interpersonal trauma, and no trauma exposure can be explained by shattering of fundamental assumptions individuals tend to hold about the world. Each traumatic experience represents a fundamental breach of the victim's conceptualization of the world and self that must be reassembled in the wake of trauma exposure (Bloom, 2003; Janoff-Bulman, 1992; Janoff-Bulman & Frieze, 1983). Prior to trauma exposure, individuals generally see the world as just and meaningful, the self as invulnerable and worthy, and others as trustworthy (Janoff-Bulman & Frieze, 1983). Trauma challenges these assumptions by making it apparent that the self is vulnerable, the world is not always just, and, in the case on interpersonal trauma, others are capable of intentional, malicious harm. Thoughts that "the world is completely dangerous" and "no one can be trusted" are common trauma related cognitions, which exemplify this shift in worldview following trauma exposure (American Psychiatric Association, 2013, p. 272). Victims also often experience distorted self-cognitions focusing on heightened vulnerability and intense feelings of shame, guilt, and worthlessness (Amstadter & Vernon, 2008; Jeon et al., 2014). Adherence to negative global beliefs such as these is thought to lead to higher

risks for psychopathology through increased sensitivity to threats and potential dangers (Flannelly, Koenig, Galek, & Ellison, 2007). While victims of all types of trauma must learn to reassemble shattered assumptions about the self and the world, only victims of interpersonal trauma are forced to "confront the existence of evil and question the trustworthiness of people" (Janoff-Bulman, 1992, p. 78). This additional shattered assumption marks the fundamental distinction between interpersonal and non-interpersonal trauma.

In addition to assumptive differences between interpersonal and non-interpersonal trauma, the social nature of interpersonal trauma may also contribute to its distinct effects. The notion that social relationships are essential for normative human development began as early as Aristotle. Further refined by thinkers such as Thomas Aquinas, Marx, Bowlby, and Maslow, the necessity of social interactions has been incorporated into a wide variety of theories such as Maslow's hierarchy of needs (1943) and Bowlby's attachment theory (1988). From a child's earliest moments, nurturing, consistent relationships are critical for forming secure attachment styles (Calkins & Leerkes, 2011; Cassidy, Jones, & Shaver, 2013; Baumeister & Leary, 1995). Without these healthy attachment styles, children are at increased risk for negative social, psychological, and physical health outcomes (Calkins & Leerkes, 2011; Cassidy et al., 2013). Additionally, an innate desire to form close, social groups has clear evolutionarily advantages throughout the life course (Baumeister & Leary, 1995; Bloom, 2003). By joining together into larger social groups, early humans benefited from increased protection, higher likelihoods of finding an acceptable mate, and greater access and control over finite resources. Thus, the likelihood of increased survival and procreation

may have made social inclinations an evolutionarily adaptive trait that helped define an individual's fitness. As sociability may be considered a fundamental human motivation, interpersonal traumas may have a distinct impact because of the threat they pose to sociability and group cohesion (Baumeister & Leary, 1995).

Similar to the notion that social relationships are essential for health is the finding that social and physical pain are perceived in the same region of the brain (Eisenberger, 2012). In the landmark study by Eisenberger, Lieberman, and Williams (2003), researchers simulated a virtual ball-tossing game in which participants were eventually excluded. Results from an fMRI revealed that the same brain areas responsible for detecting and processing physical pain were activated when virtual players excluded and therefore socially isolated the participant. Additionally, activation of these areas is significantly correlated with the participant's reported distress after exclusion. Social stress has also been linked to the body's inflammatory response and changes in genetic structure (Slavich, 2016; Slavich, Way, Eisenberger, & Taylor, 2010). These results support the evolutionary theory that ruptures in social relationships have profoundly painful effects and underscores the potential for great harm when social ties are fractured during interpersonal traumas. Just as the body uses physical pain to warn the organism of physical dangers, emotional pain may serve as the brain's evolutionary incentive to avoid interpersonal conflict and the possibility of social isolation. When considering human's innate motivation to maintain relationships, it becomes clear why interpersonal trauma may pose distinct challenges for recovery. In addition to the cognitive difficulties created by shattering basic assumptions, interpersonal trauma represents a rupture of social norms and group cohesion for which humans innately strive.

The link between interpersonal trauma and negative mental health outcomes has been generally borne out in the literature in both clinical and community samples. Interpersonal trauma has been found to be a stronger predictor of PTSD, depression, borderline personality disorder, disruptive behavior problems, attachment anxiety, and attachment avoidance than non-interpersonal trauma (Ford, Gagnon, Connor, & Pearson, 2011; Fowler, Allen, Oldham, & Frueh, 2013; Luthra et al., 2009; Westphal et al., 2013). Within the broader context of interpersonal traumas, sexual assault has been identified as a serious risk factor for physical and mental health problems. Negative outcomes associated with sexual assault include depression, increased drug and alcohol use, borderline personality disorder, sexual risk taking, eating disorders, and sexual dysfunction (Bryant-Davis et al., 2011; Faravelli et al., 2004; Turchik and Hassija, 2014; Westphal et al., 2013). Researchers have also found that victims of sexual assault have worse emotional reactions following trauma exposure than victims of other traumas, reporting higher levels of anger, shame, and guilt following the assault (Amstadter & Vernon, 2008). Depression in particular has been commonly associated with sexual assault and has been found to mediate the relationships between sexual assault and negative physical health outcomes (Bryant-Davis et al., 2011; Clum, Calhoun, and Kimerling, 2000; Gillespie et al. 2009).

To understand the differences between sexual assault and other interpersonal traumas, it may be helpful to look at the distinct social threats that sexual assault may present. Researchers have begun to explore targeted rejection (TR) as a specific type of social stressor. Linked to changes in genetic expression, inflammation response, and depression, TR has been defined as “the exclusive, active, and intentional social rejection

of an individual by others" (Slavich, 2016; Slavich, O'Donovan, Epel, & Kemeny, 2010; Slavich, Thornton, Torres, Monroe, & Gotlil, 2009, p. 223). For an event to be considered a TR, it must meet three criteria. First, the person who is rejected must be rejected intentionally and actively. This criterion precludes events such as the deterioration of a relationship through negligence because it is neither an active rejection nor intentional. Second, the rejection must be isolated in impact so that only one individual is rejected. Thus, if a singular rejection related event affected more than one person (i.e. a company laying off more than one person), it could not be considered a TR because it is not specific to an individual (Slavich et al., 2009). Third, the rejection must involve a social demotion, where the subject's social standing is negatively affected by the rejection. Thus, if the experience had no impact on any other social interactions, it would not be a TR.

Although TR has been primarily applied to social stressors as opposed to traumas, sexual assault appears to meet the criteria described above. Intrinsic to the act of sexual assault is a fundamental and active rejection of a specific individual's wishes, desires, and ability to choose. Instead of respecting a victim's decisional capacities, the assailant treats the victim not as another human being but as an object (Fredrickson & Robert, 1997). Researchers who have studied recovery from sexual assault have found that victims often experience themselves as an object during the rape" (Lebowitz & Roth, 1994). Often defining themselves by their sexuality, many victims internalize this objectification and view themselves as "soiled, dirtied, or ruined" (Fredrickson & Roberts, 1997; Lebowitz & Roth, 1994, p. 372). In doing so, many victims interpret themselves as being of less value to others, particularly to the men in their lives and

future romantic partners. As such, many victims of sexual assault experience themselves not only as being treated as an object but also as suffering a social demotion as a result of the assault. Thus, this TR may contribute to additional challenges that are not always included in other interpersonal traumas.

The purpose of this study is to fill the current gap in the literature regarding differences between sexual assault, interpersonal traumas other than sexual assault, and non-interpersonal traumas. Although there are many negative mental health outcomes associated with trauma, we chose depression, positive social support, and negative social support, because of their consistent link with trauma generally and sexual assault specifically. As socioeconomic status, race, and age have been found to have disparate effects on resiliency and overall mental health outcomes, we controlled for these variables (Blair & Raver, 2012; Font & Maguire-Jack, 2016; Jaffee, Caspi, Moffitt, Polo-Tomas, & Taylor, 2007; Post, Gehlert, Hade, Reiter, & Ruffin, 2013; Sorsoli, 2007). Additionally, as childhood sexual abuse has been found to have negative effects above and beyond adult sexual assault, we chose to exclude individuals who had been sexually abused in childhood (Lilly & Valdez, 2012). We assert that the negative effects of lifetime trauma can be understood as a continuum ranging from events involving the highest level of interpersonal rejection (sexual assault) to traumatic events without interpersonal rejection (non-interpersonal traumas), and no trauma exposure as a reference group. We hypothesize that non-interpersonal trauma, interpersonal trauma, and sexual assault will be related to higher depressive symptoms, lower positive social support, and higher negative social support and that distinct patterns relating to TR will

emerge in the interpersonal trauma and sexual assault groups. More specifically, we hypothesize that:

- Sexual assault will be the strongest positive predictor of depression, followed by interpersonal trauma and non-interpersonal trauma.
- Sexual assault will be the strongest positive predictor of negative social support, followed by interpersonal trauma and non-interpersonal trauma.
- Sexual assault will be the strongest negative predictor of positive social support, followed by interpersonal trauma and non-interpersonal trauma.

CHAPTER TWO

METHODS

Participants and Procedures

These data were gathered as part of the Biopsychosocial Religion and Health Study (BRHS), a sub-study of the Adventist Health Study-2 (AHS-2) to address religion, lifestyle, and health (Butler et al., 2008; Lee et al., 2009). The AHS-2 is a cohort study of 96,194 Seventh-day Adventist (SDA) adults in North America who were recruited from church congregations to complete a questionnaire on lifestyle, cancer, and health from 2003-2006 (Butler et al., 2008). Of the participants from the AHS-2, a random sample of 21,000 adults in the U.S. were mailed a 20 page BRHS survey and 10,988 responded after receiving up to 3 postcard reminders in 2006-2007 (Lee et al., 2009). In 2010-2011 wave, 9440 participants who were Black or White and who had complete data in 2006-2007 survey received a follow-up BRHS survey and 6,524 responded. As the purpose of this study was to explore adult trauma exposure in women, 2,079 men were excluded and 1,164 women who reported childhood trauma were excluded. After men and individuals who reported childhood trauma were excluded, 3,133 women remained. The present investigation employed data from the 2010-2011 wave of BRHS to examine demographics, adult trauma exposures, and mental health variables among female participants (age range 36-96, *M = 63; SD =12.77;* see Table 1).

Table 1. Sample Demographics (N =3,133)

Race	n (%)
White	2024 (64.6)
Black	976 (31.2)
Other	133 (4.2)
Difficulty Meeting Expenses (Last Three Years)	
Not at All	2,066 (65.9)
A Little	437 (13.9)
Somewhat	292 (9.3)
Fairly	196 (6.3)
Very	141 (4.5)
Highest Level of Education	
Grade School	48 (1.4)
Some High School	109 (3.5)
High School Diploma	420 (13.4)
Trade School Diploma	140 (4.5)
Some College	723 (23.1)
Associate Degree	404 (13.0)
Bachelor's Degree	774 (24.7)
Master's Degree	428 (13.7)
Doctoral Degree	87 (2.8)

Measures

Demographic information

Information on participants' race, age, education level, and difficulty meeting expenses for basic needs in the last three years was obtained on the BRHS survey. Race was dummy coded with White as the reference group. Education was measured on a 9-point Likert scale ranging from some grade school to doctoral degree. Difficulty meeting expenses was measured using Pudrovska, Schieman, Pearlin, and Nguyen's (2005) scale, which states, "On average how difficult was it for your family to meet expenses for basic needs like food, clothing, and housing in the last three years" rated on a 5-point Likert scale from *not at all difficult* to *very difficult*.

Trauma Groups

Lifetime trauma exposure was measured using Cusack, Frueh, and Brady's (2004) trauma history screening. Specific trauma types were sorted into three different trauma categories (non-interpersonal trauma, interpersonal trauma, and sexual assault) with each trauma category dummy coded so that 1 = exposure to a trauma in that category and 0 = no exposure to a trauma in that category (see table 2 for trauma items, trauma categories, and frequencies). Each trauma category was entered separately into the regression equation so that individuals may endorse multiple trauma categories. If the trauma item was not reported, researchers assumed the trauma did not occur. As the primary research question concerned effects of adult trauma, participants who reported childhood trauma were excluded from this study.

Depression

Depression was assessed using the Center for Epidemiological Studies Depression short form (CES-D; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). This 11-item scale measures the presence and severity of depressive symptoms over the past week on a 4-point rating scale ranging from *rarely/none of the time* to *most/all of the time*. These items were then summed to form a scale ranging from zero to 33 (M = 3.43, SD = 3.62; α = .80).

Table 2. Trauma Types, Trauma Items, and Frequencies of Specific Trauma Exposure

Trauma Items	Frequency	Percentage
Non-Interpersonal Trauma Variable	1043	33.29%
Have you ever been in a really bad accident (car, at work, or somewhere else) and thought you might be killed or injured?	775	24.73%
Have you ever been in a natural disaster (tornado, hurricane, flood, or major earthquake) and thought you might be killed or injured?	477	15.23%
Interpersonal Trauma Variable	366	11.68%
Have you ever been in a war zone or had a military combat experience?	40	1.28%
At any time in your life has anyone (including family members or friends) ever attacked you with a gun, knife, or some other weapon, regardless of whether you ever reported it?	189	6.03%
At any time in your life has anyone (including family members or friends) ever attacked you *without a weapon*, but *with the intent to kill or seriously injure you*?	231	7.37%
Sexual Assault Variable	395	12.61%
At any time in your life, whether you were an adult or a child, has anyone used physical force or threat of force to make you have some type of unwanted sexual contact	395	12.61%

Note: Trauma variables are dummy coded so that 1 = exposure to any trauma within that category and 0 = no exposure to any trauma in that category. Trauma variables are not mutually exclusive.

Positive and Negative Social Support

Social support was assessed using an 8-item short form of the Positive and Negative Social Exchanges (PANSE) scale rated on a 5-point Likert scale from *never* to *very often* (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005). Positive social support was rated on the following support domains: informational, instrumental, emotional, and companionship. Negative social support was rated on the following support domains: unwanted advice or intrusions, failure to provide help, unsympathetic or insensitive behavior, and rejection or neglect. An item from each domain that was conceptually redundant was deleted to shorten the measure for older participants and an average of all domains was compiled for the overall scale. High scores on the negative social exchanges scale indicate high levels of negative social exchanges (M = 1.8, SD = .59, α = .85.), whereas high scores on the positive social exchange scale indicated higher levels of positive social exchanges (M = 3.42, SD = .76, α = .87).

Data Analytic Plan

A series of hierarchical multiple regressions were used to test the relative contributions of trauma type on depression and social support (positive and negative) above and beyond the effect of age, education, race, and difficulty meeting expenses for basic needs. If participants did not respond to one or two items for the depression or social support scales, mean replacement was used to form the scaled score. If the participants missed more than two items on the measures of depression or social support, scaled scores were computed using SPSS v20's multiple imputation (5 imputations).

Missing data from trauma types and control variables were also imputed using multiple imputation. As each trauma variable was entered separately into the regression equation, individuals could experience multiple traumas and the effects of each individual trauma could be interpreted above and beyond the effects of other trauma exposure. Trauma types and race were dummy coded with no trauma exposure and White as the reference groups. As depression was positively skewed, a square root transformation was utilized to normalize the distribution. All other assumptions were met. Relative importance analyses were run to test whether predictor differed significantly from each other. Per Tonidandel and Lebreton (2011), predictors were judged to be significantly different from each other when 0 was not included in the confidence interval.

CHAPTER THREE

PUBLISHABLE PAPER

Journal Submission Cover Letter

To be submitted to *Violence Against Women* formatting is as required for journal, not LLU thesis guidelines.

Dr. Claire Renzetti
Editor-in-Chief
Violence Against Women

August 31, 2016

Dear Dr. Renzetti:

As a 4th year clinical psychology doctoral student at Loma Linda University, I am pleased to submit this manuscript for your consideration. Throughout my research and clinical training, I have developed a deep interest in exploring the relationship between trauma and women's health. As a member of a lab involved with the national Biopsychosocial Religion and Health Study (BRHS), a longitudinal cohort study of Seventh-day Adventist adults (Lee et al., 2009), I have had the opportunity to study the impact of trauma upon women at length. In particular, I have focused my research on exploring the impact of interpersonal trauma and sexual assault on women.

I am happy to present an original empirical article entitled, "The Impact of Interpersonal Violence on Depression and Social Support." Although Slavich, O'Donovan, Epel, and Kemeny (2010) have documented the negative effects of targeted rejection events and posited the mechanisms behind these rejection experiences and depression, no article to our knowledge has applied this theory to trauma. Given the unique challenges of both sexual assault and interpersonal trauma, these trauma categories may be expected to have worse long-term depressive and social outcomes if Slavich et. al's (2010) theory holds true for trauma. Additionally, although many studies have shown that sexual assault has more deleterious effects than a broad category of trauma groupings, no study to our knowledge has directly compared sexual assault to a grouping of adult interpersonal traumas.

The purpose of this study is to explore the relationships between depression, perceived social support, and trauma types (non-interpersonal trauma, interpersonal trauma excluding sexual assault, and sexual assault). In this paper, we show that interpersonal trauma and sexual assault are significant predictors of depression while non-interpersonal

trauma is not. Although there was no significant difference between interpersonal trauma, non-interpersonal trauma, and sexual assault, when sexual assault was combined into the interpersonal trauma grouping, results indicated interpersonal trauma was associated with significantly higher depressive symptomatology than non-interpersonal trauma. All trauma groupings were significant predictors negative social support while none of them predicted positive social support.

We firmly believe that this article is a strong fit for your journal because it is an empirical study exploring several different categories of traumatic events that women experience with both research and clinical implications. Our study highlights the importance of drawing distinctions between traumas based on interpersonal characteristics and considering how rejection characteristics may lead to depressive symptomatology. In particular, our paper is the first to our knowledge that proposes a possible link between interpersonal trauma and Slavich et. al's (2010) theory of targeted rejection. This article is unpublished, original, and has not been submitted for publication in another journal. We have no conflicts of interest to disclose and our manuscript is 4,118 words long and contains 9 tables.

Thank you for your consideration.

Katherine Dautenhahn, MA

The Impact of Interpersonal Violence on Depression and Social Support

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Abstract

This study explores the impact of sexual assault, interpersonal trauma, and non-interpersonal trauma on depression and social support. Female adult, Seventh-day Adventists in the Biopsychosocial Religion and Health Study were surveyed and regressions controlling for age, difficulty meeting expenses, education, and race tested whether trauma types predicted depression and social support. Results indicated sexual assault and interpersonal trauma predicted depression while non-interpersonal trauma did not. When sexual assault was combined with other interpersonal traumas, interpersonal trauma was associated with higher depressive symptomatology than non-interpersonal trauma. Trauma significantly predicted negative but not positive social support. Theoretical implications are discussed.

Keywords: Interpersonal Trauma, Sexual Assault, Depression, Trauma, Targeted Rejection

Literature Review

Research consistently demonstrates that traumatic events negatively impact mental and physical well-being. Researchers have found that 69% of U.S. adult women have experienced at least one traumatic event, with 10% of women reporting physical assault, 36% reporting criminal victimization, and 33% reporting experiencing a natural disaster (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). In particular, 59% of women report interpersonal trauma experiences and 27% to 71% report sexual assault (Bryant-Davis, Ullman, Tsong, Gobin, 2011; Kilpatrick et al., 2013; Resnick et al., 1993). Given women's high risk for trauma, the effects of trauma, particularly interpersonal trauma, represent a serious health concern.

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), traumatic events involve either threatened or experienced fear of death or physical injury (American Psychiatric Association, 2013). One challenge for trauma researchers is that trauma includes both interpersonal and non-interpersonal trauma exposures (Ford, Stockton, Kaltman, & Green, 2006; Kilpatrick et al. 2003; Lilly & Valdez, 2012). Although interpersonal trauma has more severe outcomes than non-interpersonal trauma, sexual assault may be a subcategory of interpersonal trauma that causes worse mental health outcomes than other traumas (Amstadter & Vernon, 2008; Faravelli, Giugni, Salvatori, & Ricca, 2004; Kessler et al., 1995). This study examined the effects of different types of adult trauma on depression and social support, with particular attention to non-interpersonal trauma, interpersonal trauma, and sexual assault as a specific subtype of interpersonal trauma.

The link between interpersonal trauma and negative mental health outcomes is evident in both clinical and community samples. Interpersonal trauma is a stronger predictor of post-traumatic stress disorder (PTSD), depression, borderline personality disorder, disruptive behavior problems, attachment anxiety, and attachment avoidance than non-interpersonal trauma (Ford, Gagnon, Connor, & Pearson, 2011; Fowler, Allen, Oldham, & Frueh, 2013; Luthra et al., 2009; Westphal et al., 2013). Within interpersonal traumas, sexual assault has been identified as a risk factor for physical and mental health problems. In addition to experiencing the effects common to all interpersonal trauma, women who have been sexually assaulted have higher rates of PTSD, sexual, eating, and mood disorders than women who experienced non-sexual traumas (e.g., car accidents, physical attacks, robberies) (Faravelli et al., 2004). Victims of sexual assault have higher levels of anger, shame, and guilt following the assault than victims of other traumas, reactions that may isolate them from social support (Amstadter & Vernon, 2008). Depression in particular has been commonly associated with sexual assault and mediates the relationship between sexual assault and negative health outcome (Bryant-Davis et al., 2011; Clum, Calhoun, & Kimerling, 2000; Gillespie et al. 2009).

Differences between interpersonal and non-interpersonal trauma outcomes can be attributed to the unique social nature of interpersonal traumas. While non-interpersonal trauma challenges the victim's belief in a just world and personal invulnerability, victims of interpersonal trauma have the additional concern of coming to terms with intentional violence from another. If, as evolutionists hypothesize, sociability is a fundamental human motivation, then interpersonal traumas can threaten social cohesion (Baumeister & Leary, 1995). This is supported by the assertion that trauma symptoms such as

avoidance and hyper-arousal are related to less perceived social support and more negative responses from friends and family (Andrews, Brewin, & Rose, 2003; Boyraz, Horne, Armstrong, & Owens, 2015). It is likely that traumas that engender more social stigma and victim blaming such as sexual assault may further exacerbate poor outcomes through fear of negative reactions or negative reactions following disclosure of the assault (Ahrens, 2006).

The notion that social relationships are essential for normative human development has been consistent across Aristotle, Aquinas, Marx, Maslow, and Bowlby. An innate desire to form close, social groups has clear evolutionarily advantages throughout the life course (Baumeister & Leary, 1995; Bloom, 2003). By joining together into larger social groups, early humans benefited from increased protection, higher likelihoods of finding an acceptable mate, and greater access and control over finite resources. Thus, the likelihood of increased survival and procreation may have made social inclinations an evolutionarily adaptive trait defining an individual's fitness. As sociability may be considered a fundamental human motivation, interpersonal traumas may have a distinct impact because of the threat they pose to sociability and group cohesion.

Similar to the notion that social relationships are essential for health is the finding that social and physical pain are perceived in the same region of the brain (Eisenberger, 2012). In the landmark study by Eisenberger, Lieberman, and Williams (2003), researchers simulated a virtual ball-tossing game in which participants were eventually excluded. Results from an fMRI revealed that the same brain areas responsible for detecting and processing physical pain were activated when virtual players excluded and

therefore socially isolated the participant. Additionally, activation of these areas is correlated with the participant's distress after exclusion. Thus, ruptures in social relationships may have more profoundly negative effects after interpersonal, but not non-interpersonal, traumas.

In addition to the challenges inherent in all interpersonal traumas, sexual assault may have distinctive social rejection characteristics. Specifically, sexual assault and to a lesser degree interpersonal traumas may be a Targeted Rejection (TR). TR is defined as "the exclusive, active, and intentional social rejection of an individual by others" and has been associated with changes in genetic expression, inflammatory markers, and depression (Slavich, O'Donovan, Epel, & Kemeny, 2010; Slavich, Thornton, Torres, Monroe, & Gotlib, 2009, p. 223). For an event to be considered a TR, it must meet three criteria: (1) only one person must feel rejected; (2) active and intentional rejection; and (3) the rejection must involve a social demotion.

Sexual assault meets these criteria. First, the nature of sexual assault necessitates that a *specific* person is the target or victim. Thus, the experience of sexual assault naturally isolates the individual from others during an assault. Second, active and intentional rejection is demonstrated as the assault rejects a victim's wishes, desires, and abilities to choose. Researchers studying recovery from sexual assault have found that survivors often feel degraded to the status of an object during rape (Lebowitz & Roth, 1994). Thus, victims of sexual assault may experience themselves as rejected in their status as an autonomous person and demoted to the status of an object. Third, social demotion is demonstrated when victims internalize this objectification and view themselves as "'soiled', 'dirtied', or 'ruined'" in a way that impacts their relationships

with others (Lebowitz & Roth, 1994, p. 372). In particular, victims often believe they are of less value following an assault to current and future significant others. This perceived social demotion may be exacerbated by negative reactions from others via cultural adherence to rape myths, unsupportive acknowledgement of the sexual assault, and victim blaming that may further isolate assault victims (Ahrens, 2006; Campbell, Dworkin, & Cabral, 2009; Relyea & Ullman, 2015). Given these results from the literature, previous research provides general support for the argument that sexual assault could be conceptualized as a TR.

To explore how TR may lead to depressive symptomology, Slavich et al. (2010) hypothesize that rejection activates brain regions associated with social and physical pain (the anterior insula and dorsal anterior cingulate), leading to negative self-referential thoughts and emotions (humiliation and shame). Activation of the anterior insula and dorsal anterior cingulate then lead to activation of the hypothalamic-pituitary-adrenal axis, sympathetic-adrenal-medullary axis. This in turn leads to behaviors indicative of depressive symptomatology including social withdrawal and anhedonia.

TR may have subtle ramifications for an individual's social grouping (Slavich et al., 2009). For example, rejection by a romantic partner leads to the loss of mutual friends who side with the romantic partner. Although this hypothesis is only supported by anecdotal evidence after coding TR observations, there are implications for sexual assault and interpersonal trauma events. If participants experience social rejection from mutual friends following a break up, it follows that interpersonal traumas would garner similar if not more intense reactions. In particular, rape myths and victim blaming may lead to

sexual assault survivors being rejected by their social network, particularly if the perpetrator is part of the network.

The purpose of this study is to examine depression and social support outcomes in adult women who report lifetime experiences of sexual assault, interpersonal traumas other than sexual assault, and non-interpersonal traumas. As socioeconomic status, race, and age have been found to have disparate effects on resiliency and overall mental health outcomes, we controlled for these variables (Blair & Raver, 2012; Font & Maguire-Jack, 2016; Jaffee, Caspi, Moffitt, Polo-Tomas, & Taylor, 2007; Post, Gehlert, Hade, Reiter, & Ruffin, 2013; Sorsoli, 2007). Additionally, as childhood sexual abuse has negative effects above and beyond adult sexual assault, we excluded women who had been sexually abused in childhood (Lilly & Valdez, 2012). We assert that the negative effects of trauma can be understood as a continuum ranging from events involving the highest level of interpersonal rejection (sexual assault) to traumatic events without interpersonal rejection (non-interpersonal traumas). More specifically, we hypothesize that non-interpersonal trauma, interpersonal trauma, and sexual assault will all significantly predict depressive symptoms, negative social support, and positive social support. However, we hypothesize that sexual assault will be the strongest positive predictor of depression and negative social support and the strongest negative predictor of positive social support, followed by interpersonal trauma and non-interpersonal trauma.

Method

Participants and Procedures

Data was collected as part of the Biopsychosocial Religion and Health Study (BRHS), a sub-study of the Adventist Health Study-2 (AHS-2) to address religion, lifestyle and health (Butler et al., 2008; Lee et al., 2009). The AHS-2 is a cohort study of 96,194 Seventh-day Adventist (SDA) adults in North America recruited from church congregations to complete a questionnaire on lifestyle, cancer, and health from 2003-06 (Butler et al., 2008). Of the participants from the AHS-2, a random sample of 21,000 in the U.S. were mailed a 20 page BRHS survey in 2006-2007 and 10,988 responded after receiving up to 3 postcard reminders (Lee et al., 2009). In the 2010-2011 wave, 9,440 participants who were Black or White and who had complete data from the 2006-2007 survey received a follow-up BRHS survey and 6,524 responded. As the purpose of this study was to explore adult trauma exposure in women, 2,079 men were excluded and 1,164 women who reported childhood trauma were excluded leaving 3,133 women for analysis. The present investigation used data from the 2010-2011 wave of BRHS to examine demographics, adult trauma exposures, and mental health among females ages 36 - 96 years (M = 63*; SD* =12.77*;* see Table 1).

Measures

Demographic information. Participants' race, age, education, and difficulty meeting expenses for basic needs in the last three years was assessed on the BRHS survey. Race was dummy coded with White as the reference group. Education was measured on a 9-point Likert scale ranging from some *grade school* to *doctoral degree*.

Difficulty meeting expenses was measured using Pudrovska, Schieman, Pearlin, and Nguyen's (2005) item, "On average how difficult was it for your family to meet expenses for basic needs like food, clothing, and housing in the last three years" rated on a 5-point Likert scale from *not at all difficult* to *very difficult*.

Trauma. Trauma exposure was measured using Cusack, Frueh, and Brady's (2004) trauma history screening. Specific trauma types were coded as three trauma categories (non-interpersonal trauma, interpersonal trauma, and sexual assault) with each trauma category dummy coded so that 1 = exposure to trauma in that category and 0 = no exposure to trauma in that category (see table 2 for trauma items, trauma categories, and frequencies). Each trauma category was entered separately into the regression equation so that individuals may endorse multiple trauma categories. As the primary research question concerned effects of adult trauma, participants who reported childhood trauma were excluded from this study.

Depression. Depression was assessed using the Center for Epidemiological Studies Depression short form (CES-D; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). This 11-item scale measures the presence and severity of depressive symptoms over the past week on a 4-point rating scale ranging from *rarely/none of the time* to *most/all of the time.* These items were then averaged to form a scale ranging from zero to 33 (M = 3.43, SD = 3.62; α = .80).

Positive and Negative Social Support. Social support was assessed using an 8-item short form of the Positive and Negative Social Exchanges (PANSE) scale rated on a 5-point Likert scale from *never* to *very often* (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005). Positive social support scores were created by averaging the participant's

scores on the following support domains: informational, instrumental, emotional, and companionship. Negative social support scores were created by averaging the participant's scores on the following support domains: unwanted advice or intrusions, failure to provide help, unsympathetic or insensitive behavior, and rejection or neglect. An item from each domain that was conceptually redundant was deleted to shorten the measure for older participants. High scores on the negative social exchanges scale indicate high negative social support (M = 1.8, SD = .59, α = .85.), whereas high scores on the positive social exchange scale indicated high positive social support (M = 3.42, SD = .76, α = .87).

Data Analysis

A series of hierarchical multiple regressions tested the relative contributions of trauma type on depression, positive and negative social support above and beyond the effect of age, education, race, and difficulty meeting expenses for basic needs. If participants did not respond to one or two items for the depression or social support scales, mean replacement was used to form the scaled score. If the participants missed more than two items on the measures of depression or social support, scaled scores were imputed using SPSS v20's multiple imputation (5 imputations). Missing data from trauma types and control variables were also imputed using multiple imputation. Trauma types and race were dummy coded with no trauma exposure and White as the reference groups. As each trauma variable was entered separately into the regression equation, individuals could experience multiple traumas and the effects of each individual trauma could be interpreted above and beyond the effects of other trauma exposure or no trauma

exposure. As depression was positively skewed, a square root transformation was utilized to normalize the distribution. All other assumptions were met. Beta weights, *F* statistics, and adjusted R^2 from the final imputation are presented. All other results were pooled parameter estimates. Relative importance analyses were run to test whether predictors differed significantly from each other. Per Tonidandel and LeBreton (2011), predictors were judged to be significantly different from each other when 0 was not included in the confidence interval.

Results

Results indicated that 40.5% of the sample reported exposure to lifetime trauma and 11.5% reported multiple traumas (see table 3). The first regression model was significant and accounted for 5.5% of the variance in depression, $F (8, 3107) = 23.55$, $p < .001$ (see table 4). In step 1, age, race, difficulty meeting basic expenses, and education accounted for approximately 4.8% of the variance in depression, $F\Delta (5, 3110) = 32.64$, $p < .001$. In step 2, sexual assault, interpersonal trauma, and non-interpersonal trauma accounted for an additional 0.7% of the variance in depression above the effects of controls, $F\Delta (3, 3107) = 8.02$, $p < .001$. Consistent with our hypothesis, sexual assault and interpersonal trauma were significant predictors of depression with sexual assault being the strongest predictor and interpersonal trauma being the second strongest predictor, though there is considerable overlap in the confidence limits. Contrary to our hypothesis, non-interpersonal trauma did not significantly predict depression. Supplementary relative importance analyses indicated there were no significant differences between trauma predictors (see table 5 for raw and rescaled relative weights).

Table 3. Trauma Type Frequency for Single and Multiple Trauma Exposure

Trauma	Frequency	Percentage
Any Trauma	1,269	40.50%
Non-Interpersonal Trauma Only	737	23.52%
Interpersonal Trauma Only	119	3.80%
Sexual Assault Only	143	4.56%
Interpersonal and Non-Interpersonal Trauma	108	3.45%
Sexual Assault and Interpersonal Trauma	54	1.72%
Sexual Assault and Non-Interpersonal Trauma	113	3.61%
Sexual Assault, Interpersonal, and Non-Interpersonal Trauma	85	2.71%

Table 4: Hierarchical regression predicting depression with trauma type.

	Adj. R^2	ΔR^2	b	SE	β	t	*p*	95% CI
Step 1	.048	.050						
Age			.003	.002	.038	2.117	> .040	.000, .006
Race: Black			-.220	.041	-.095	- 5.336	< .001	-.301, -139
Race: Other			-.230	.094	-.044	-2.453	< .020	-.413, -.046
Basic Expenses			.139	.017	.151	8.358	< .001	.106, .172
Education			-.056	.010	-.101	-5.385	< .001	-.077, -.036
Step 2	.055	.007						
Non-Interpersonal Trauma			.050	.041	.019	1.220	> .222	-.030, .130
Interpersonal Trauma			.154	.060	.048	2.555	< .011	.036, .273
Sexual Assault			.181	.059	.054	3.091	< .002	.066, .296

Note. Race is dummy coded with White as reference group. Trauma types are dummy coded with no trauma as reference group. Beta weights and R^2 values are from the final imputation are presented. All other values are pooled estimates from the final step.

Table 5. Raw and rescaled relative weights for trauma predictors on depression and negative social support after controls.

	Raw Relative Weight	Rescaled Relative Weight	95% CI
Depression			
Non-Interpersonal Trauma	.001	10.105	-.001, .004
Interpersonal Trauma	.003	35.366	.004, .008
Sexual Assault	.004	54.529	.001, .010
Negative Social Support			
Non Interpersonal Trauma	5.111e-05	6.799	-.001 .001
Interpersonal trauma	6.422e-05	8.544	-.001, .014
Sexual Assault	6.363e-04	84.657	-.001, .004
Depression			
Interpersonal Trauma (including sexual assault)	.007	89.010	.002, .015
Non-Interpersonal Trauma	.001	10.990	-.001, .005

Note: Predictors are significant if 0 is not included in the confidence interval.

The second regression model was also significant and accounted for 9.4% of the variance in negative social support, F (8, 3124) = 41.519, $p < .001$ (see table 6). In step 1, controls accounted for approximately 7.4% of the variance in negative social support, FΔ (5, 3127) = 50.907, $p < .001$. In step 2, sexual assault, interpersonal trauma, and non-interpersonal trauma accounted for an additional 2.1% of the variance in negative social support above the effects of controls, FΔ (3, 3124) = 23.999, $p < .001$. Consistent with our hypothesis, all trauma variables were significant predictors of negative social support. Contrary to our hypothesis, non-interpersonal trauma was the strongest positive predictor of negative social support, followed by interpersonal trauma, and then sexual assault. Supplementary relative importance analyses, however, indicated no significant differences between interpersonal trauma and non-interpersonal trauma and interpersonal trauma and sexual assault, 95% CI [-.009, .010] and 95% CI [-.010, .009], respectively (see table 5 for raw and rescaled relative weights).

The third regression model was significant, F (8, 3124) = 13.473, $p < .001$ and accounted for approximately 3.1% of the variance in positive social support (see table 7). However, the second step including trauma variables did not result in a significant increase in variance accounted for above controls ($p > .11$); none of the trauma variables were significant predictors of positive social support ($ps > .11$).

To explore how interpersonal trauma including sexual assault compared to non-interpersonal trauma, a supplementary regression predicting depression from non-interpersonal trauma and interpersonal trauma (including sexual assault) was run (see table 8). The overall model was significant and accounted for 5.4% of the variance in depression, $F(7, 3{,}065) = 26.25$, $p < .001$. In step 1, controls accounted for 4.7% of the

Table 6. Hierarchical regression predicting negative social support with trauma types.

	Adj. R^2	ΔR^2	b	SE	β	t	*p*	95% CI
Step 1	.074	.075						
Age			-.009	.001	-.202	-10.859	< .001	-.011, -.008
Race: Black			-.010	.023	-.008	-.444	> .650	-.055, .035
Race: Other			-.004	.051	-.003	-.083	> .934	-.105, .096
Basic Expenses			.069	.009	.133	7.353	< .001	.051, .087
Education			.000	.006	.004	.034	> .970	-.011, .011
Step 2	.094	.021						
Non-Interpersonal Trauma			.096	.022	.081	4.316	< .001	.052, .140
Interpersonal Trauma			.113	.034	.074	3.947	< .001	.067, .198
Sexual Assault			.113	.033	.062	3.416	< .002	.048, .178

Note. Race is dummy coded with White as reference group. Trauma types are dummy coded with no trauma as reference group. Beta weights and R^2 values are from the final imputation are presented. All other values are pooled estimates from the final step.

Table 7. Hierarchical regression predicting positive social support with trauma types.

	Adj. R^2	ΔR^2	b	SE	β	t	*p*	95% CI
Step 1	.030	.032						
Age			- .006	.001	- .105	- 5.744	< .001	- .009, -.004
Race: Black			- .120	.030	- .072	- 4.020	< .001	-.179, - .062
Race: Other			- .012	.068	> .001	- .183	> .850	-.146, .121
Basic Expenses			- .020	.012	- .026	- 1.672	> .090	- .044, .004
Education			.044	.007	.105	5.869	< .001	.029, .058
Step 2	.031	.002						
Non-Interpersonal Trauma			- .008	.030	-. 008	- .252	> .800	- .067, .052
Interpersonal Trauma			- .005	.044	-. 004	- .120	> .900	- .092, .082
Sexual Assault			- .069	.044	- .037	-1.588	> .110	-.155, .016

Note. Race is dummy coded with White as reference group. Trauma types are dummy coded with no trauma as reference group. Beta weights and R^2 values are from the final imputation are presented. All other values are pooled estimates from the final step.

Table 8. Hierarchical regression predicting depression with interpersonal and non-interpersonal trauma.

	Adj. R^2	ΔR^2	b	SE	β	t	*p*	95% CI
Step 1	.047	.048						
Age			.003	.002		1.956	$\leq$ .050	.000, .006
Race: Black			-.216	.042		-5.195	< .001	-.298, -.135
Race: Other			-.235	.094		-2.493	< .015	-.420, -.050
Basic Expenses			.137	.017		8.165	< .001	.104, .159
Education			-.055	.011		-5.244	< .001	-.076, -.035
Step 2	.054	.008						
Non-Interpersonal Trauma			.051	.040		1.276	> .202	-.028, .130
Interpersonal Trauma (including sexual assault)			.226	.047		4.755	< .001	.133, .319

Note. Race is dummy coded with White as reference group. Trauma types are dummy coded with no trauma as reference group. Beta weights and R^2 values are from the final imputation are presented. All other values are pooled estimates from the final step.

variance in depression, FΔ (5, 3,067) = 31.20, $p < .001$. Step 2, containing both interpersonal trauma and non-interpersonal trauma, accounted for an additional 0.08% of the variance in depression, FΔ (2, 3,065) = 13.26, $p < .001$. Interpersonal trauma was a significant predictor of depression while non-interpersonal trauma was not. Supplementary relative importance analyses revealed that interpersonal trauma and non-interpersonal trauma were significantly different, with interpersonal trauma (including sexual assault) being the strongest predictor of depression, 95% CI [.001, .014].

A supplementary analysis was run to explore the impact of all possible interactions between trauma variables (sexual assault x interpersonal trauma, sexual assault x non-interpersonal trauma, interpersonal trauma x non-interpersonal trauma, and sexual assault x interpersonal trauma x non-interpersonal trauma). Demographics were entered into the first step; sexual assault, interpersonal trauma, and non-interpersonal trauma were entered into the second step; and the final step included the interaction terms (see table 9). The overall model was significant and accounted for 5.3% of the variance in depression, $F(12, 3060) = 15.34$, $p < .001$. The third step containing the interaction terms, however, did not result in a significant increase in variance accounted for in depression as none of the interactions were significant, FΔ (5, 3,067) = 31.20, $p < .001$.

Table 9. Hierarchical regression predicting the effects of trauma types and interactions between trauma types on depression after controlling for age, ethnicity, basic expenses, and education.

	Adj. R^2	ΔR^2	b	SE	β	t	*p*	95% CI
Step 1	.047	.048						
Age			.003	.002	.036	1.962	> .050	.000, .006
Race: Black			-.218	.042	-.095	-5.208	< .001	-.300, -.136
Race: Other			-.235	.094	-.045	-2.486	< .015	-.420, -.050
Basic Expenses			.137	.017	.149	8.155	< .001	.104, .170
Education			-.055	.011	-.099	-5.203	< .001	-.076, -.034
Step 2	.054	.008						
Non-Interpersonal Trauma			.051	.046	.022	1.108	> .250	-.039, .142
Interpersonal Trauma			.190	.098	.058	1.939	> .050	-.002, .383
Sexual Assault			.243	.091	.077	2.672	< .010	.065, .422
Step 3	.053	.001						
Non-Interpersonal x Interpersonal Trauma			.038	.145	.012	.259	> .750	-2.47, .322
Sexual Assault x Interpersonal Trauma			-.180	.191	-.036	-.940	> .340	-.554, .195
Sexual Assault x Non-Interpersonal Trauma			-.049	.140	-.014	-.348	> .720	-.323, .226
Sexual Assault x Interpersonal x Non-Interpersonal Trauma			.024	.266	.003	.091	> .920	-.496, .545

Note. Race is dummy coded with White as reference group. Trauma types are dummy coded with no trauma as reference group. Beta weights and R^2 values are from the final imputation are presented. All other values are pooled estimates from the final step.

Discussion

The purpose of this study was to explore the effects of three different types of trauma on depression and social support later in life. Overall, our results indicated that 40 percent of women sampled had experienced at least one type of trauma earlier in their lives and that almost twelve percent of these women experienced more than one trauma. Because we had data on all types of adult trauma, we were able to compare the effects of each type on psychosocial outcomes. The results of these analyses revealed first that interpersonal trauma and sexual assault earlier in life do predict depressive symptoms while non-interpersonal trauma does not. Further, all types of trauma predicted negative social support and exchanges while no type of trauma predicted positive social support and exchanges. We examined these findings further by testing the differences between the relative weights of these predictors. This demonstrated that there were no differences between the relative weight of interpersonal trauma and sexual assault on depressive symptoms. Further, when interpersonal trauma and sexual assaults were combined into one interpersonal trauma group, then, interpersonal trauma predicted significantly higher depressive symptoms than non-interpersonal trauma. These results indicate that, contrary to our hypothesis, sexual assault does not warrant separation from other interpersonal trauma. Consistent with our overall theory, however, traumas with interpersonal characteristics were stronger predictors of depressive symptomatology than non-interpersonal trauma or no trauma.

Sexual assault, interpersonal trauma, and non-interpersonal trauma were significant and similar predictors of negative social support. The supplementary analyses indicated that trauma types did not differ in terms of their relative weight, suggesting that

any type of trauma is disruptive to social exchanges. This is further supported by the finding that none of the trauma types predicted positive social support. Trauma of any type may therefore predict more negative social interactions and exchanges and regardless of the positive social support these may be disruptive to social cohesion. Finally, because there were high rates of multiple trauma exposure types in the sample, we examined potential trauma type interactions. None of these interactions were significant in predicting inter or intrapersonal outcomes. Thus, each trauma may have an additive impact on mental health.

The main finding that interpersonal traumas have a distinctive intrapersonal impact of higher rates of depressive symptoms than other types of trauma is consistent with other literature (Fowler, et al., 2013). The intentional harm by another is seemingly disruptive to the self and has ramification for emotional health many years after the traumatic event occurs. These findings are significant because ill effects of interpersonal trauma and sexual assault are notable years later in older women who are high functioning, educated, and financially stable. As such, these outcomes likely underestimate these effects in the general population or in a clinical sample. While victims of non-interpersonal trauma must face their own vulnerability and the perceived injustice of being a victim, victims of interpersonal trauma have the added challenge of coming to terms with intentional interpersonal violence.

In particular, violations that take place in interpersonal trauma may activate similar pathways as those posited in Slavich et al.'s (2010) psychobiological model of social rejection and depression. Slavich and his colleagues propose that interpersonal rejection may lead to inflammatory responses that culminate in sickness behaviors (such

as anhedonia and social withdrawal) and depression. Although this model has not yet been tested after trauma exposures, it is reasonable to posit that interpersonal traumas affect similar pathways as rejection experiences, leading to increased levels of depression compared to non-interpersonal trauma. Given the more extreme nature of traumas as TR experiences, these differences may be even stronger than non-traumatic rejections such as being excluded from a game or having a relationship end. The finding that traumas predict negative social support may also extend Slavich et al.'s (2009) proposed rejection reverberation by indicating that traumatic or rejection events reverberate not only through one's social group but also across the lifespan. When interpreting the finding that trauma was predictive of negative but not positive social support with a TR lens, it is possible that (1) negative social supports linked to trauma is due to feeling socially isolated and depressed or (2) because any amount of negative social support is relatively disruptive to mental health and a cohesive social network. Further research should be conducted to explore how Slavich et al.'s (2010) model applies to interpersonal trauma and whether the strength of these effects increases in a clinical sample.

This study has several limitations. First, our sample included relatively high functioning, older, Seventh-day Adventists who experienced adult trauma. Thus, the generalizability of our work is limited to similar populations and the effects of trauma in this sample may be underestimated. Second, we cannot assume trauma alone caused the mental health outcomes given the cross sectional design.

Despite these limitations, our study has a number of strengths. First, this is one of the first studies to examine the differences between interpersonal, non-interpersonal trauma, and sexual assault on negative mental health in mid to late life. Second, our

study is one of the first to use TR theory to explain the process of how trauma may link to intra and interpersonal mental health outcomes (Slavich et al., 2010). Further research should examine using experimental designs TR type responses in trauma survivors. A third strength of our study is the regression design. In utilizing a regression approach, we were able to control for the effects of co-occurring traumas. Given the high rate of trauma comorbidity, this design will make these results generalizable to the effects of multiple lifetime traumas. The fourth strength of our study is that the age of our population allows us to explore how trauma affects individuals into later life. Given our assessment of lifetime trauma exposure, these results indicate that traumas have long lasting effects that continue to differentiate victims from those who have not been exposed to trauma even years after the trauma occurred. These findings provide further support for the importance of exploring how trauma impacts individuals and exploring both prevention strategies aimed at decreasing victimization and effective treatments to mitigate these effects from extending to later life.

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